



Declaration of Dr.-Ing. Folker Beck

In the matter of US Patent Application 10/630,324

I am Engineer in the Combine Engineering department of John Deere Werke Zweibrücken. I hold a diploma and a doctor degree in Agricultural Engineering of University of Stuttgart, Germany, and have worked several years in combine engineering, especially in electronic throughput control and grain loss and throughput sensing. I am named inventor of 8 issued US patents.

I have carefully studied the disclosure of US patent application 10/630,324 and declare the following.

The man skilled in the art to which the invention pertains is an agricultural engineer with some years experience in throughput and loss measurement in combines.

US patent application 10/630,324 contains disclosure describing how an evaluation device is set up to calibrate the grain sensor as a function of a normal grain flow signal and an increased grain flow signal when material is added in the last sentence of paragraph 10, the last sentence of paragraph 11 and the four last sentences of paragraph 20.

This disclosure is sufficient to enable one skilled in the art to make and use the subject matter, since at the time the patent application was filed, he had at least the following possibilities to derive an error corrected or calibrated throughput measurement value from the two sensor values measured with and without added crop material:

(a) The simplest method would be to perform a number of tests with known throughputs and known added material amounts to obtain calibration curves for the sensor. From these curves a corrected throughput can be derived based upon measured sensor values and defined added material amounts. The text in paragraph 11 is sufficient for the skilled man to come to and use this method. He does not need further explanation.

(b) The skilled man knows the relationship between the amount of material (straw and grain) in a separator of a combine and the sensor values he can expect, as described for example in [1,2]. Mathematical calculations give him the possibility to derive equations to calculate the throughput based upon the measured value by the sensor and the known amount of added material. The text in paragraph 10 is sufficient for the skilled man to perform such a calculation.

It is therefore my opinion that the skilled man, reading the disclosure of US patent application 10/630,324, is enabled to make and use a measuring system for an agricultural harvesting machine with an evaluation device connected to the grain sensor, the evaluation device calibrating the grain sensor as a function of the normal grain flow signal and the increased grain flow signal.

Zweibrücken, 15. July 2005

Dr.-Ing. Folker Beck

References:

- [1] Beck, F.: Simulation der Trennprozesse im Mähdrescher (Simulation of Grain/Straw Separation in a Combine Harvester). Fortschritt-Berichte VDI, Reihe 14 Nr. 92, VDI-Verlag GmbH, Düsseldorf, Ph.D. Thesis University of Stuttgart 1999, Germany.
- [2] Böttinger, S.: Die Abscheidefunktion von Hordenschüttler und Reinigungsanlage in Mähdreschern. Fortschritt-Berichte VDI Reihe 14 Nr. 66, Ph.D. Thesis University of Stuttgart 1993, Germany.